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ON THE RELATION OF ECZEMA TO DISTURBANCES
OF THE NERVOUS SYSTEM.

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FROM
THE MEDICAL NEWS,

Jan. 31, and Feb. 7, 1891.



[Reprinted from *THE MEDICAL NEWS*, Jan. 31, and Feb. 7, 1891.]

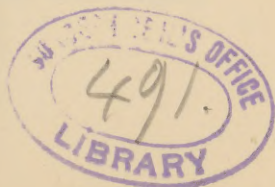
ON THE RELATION OF ECZEMA TO DISTURBANCES OF THE NERVOUS SYSTEM.¹

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No careful medical observer or thoughtful student of medicine can rightly doubt or ignore the part which the nervous system plays in relation to many diseases of the skin, although the exact connection and causal relations between nerve-disease and skin lesions may not always be apparent or satisfactorily explained. The intimate association of certain skin affections with, and their dependence upon nervous elements have passed beyond the basis of personal judgment and experience, and rest upon sound anatomical, pathological, and clinical grounds, which are being confirmed and strengthened daily.

Time and space fail us to detail here the proofs of this statement, most of which are more or less familiar to all; the careful and thorough writings of the many observers to be mentioned later on are full of demonstrations of the neuro-pathology of various diseases of the skin, and the present writer

¹ Prepared by special request, to open a discussion on eczema at the Tenth International Medical Congress, Berlin, 1890.



has on several occasions elaborated the subject, giving clinical illustrations of the same.¹

It suffices, therefore, for our present purpose to accept the fact that the nutrition of the skin and of the cells composing its structure is under direct nervous control, so that under proper nerve-influence the processes of health are carried on, while under perverted nerve-action many pathological changes may take place in the skin, as well as in other tissues.

Fully accepting this basis of a possible neuropathology of lesions in the skin, it remains for us to study how far clinical and pathological facts point toward this element of causation for the eruption, phases of eruption, or disease to which the name of eczema is given.

In approaching the subject of the relation of eczema to disturbances of the nervous system, the questions naturally arise: What is eczema? What is it that constitutes the disease under consideration? What is it that determines that the skin lesions seen in any particular individual are eczema,

¹ The Relations of the Nervous System to Diseases of the Skin, Archives of Electrology and Neurology, New York, November, 1874, and May, 1875.

Two Cases of Exophthalmic Goitre and Chronic Urticaria, etc., Chicago Journal of Nervous and Mental Diseases, October, 1875.

A Clinical Study on Herpes Zoster, American Journal of the Medical Sciences, July, 1876.

Herpes Gestationis, etc., American Journal of Obstetrics February, 1874.

Clinical Notes on Pruritus, Journal of Cutaneous and Genito-Urinary Diseases, 1887.

Alopecia Areata, Medical Record, 1889.

and not some other affection? What are the real essence and nature of the disease? Is it purely a skin affection, consisting of certain changes in the cutaneous tissue, from many causes, or is there some underlying condition, habit, or state of the system, which determines the pretty uniform set of cutaneous symptoms which we call eczema? It would seem that these questions should be definitely answered before we could make any great progress in a study of the disease or its treatment, and it is hoped that the present discussion may aid somewhat in their solution. But everyone familiar with dermatological literature knows that they have been the theme of countless discussions, and that widely-divergent opinions have been expressed by those of large experience in the disease in all countries, so that, even to-day there is no universally accepted view as to the ultimate nature of eczema.

It would be out of place to enter here at all fully into the discussion of these topics, or to consider at length the morbid conditions of the skin to be included as eczema, but a few words must be allowed in order to understand rightly the basis of our study.

We know and recognize eczema by its cutaneous phenomena, for it cannot be said that it has any other absolute symptoms than those found upon the skin. But still, polymorphous and *bizarre* as those appearances upon the skin often are, simulating at times many other quite different cutaneous affections, there is a group of symptoms which are universally recognized as belonging to eczema, and of a thousand cases so named by a competent dermatologist,

the diagnosis of very few would be questioned by others similarly qualified. A brief definition which would cover every case of eczema, or a short description of its forms and phases as seen in persons of various ages and on different parts of the body, would be very difficult to give; and, after all, it is only the composite picture, including many features belonging equally to other affections, that we designate as eczema.

But, in connection with various cases of eczema, we often meet with other phenomena also than those upon the skin—that is, we find disturbances or disease of other organs of the body, which we learn by clinical observation to associate more or less closely with the disease under consideration, and which are found by experience to be of importance etiologically. These; furthermore, are seen to improve or disappear with the hygienic and general treatment or measures directed to the eruption, and yet none of them can be called absolute symptoms of the disease, or essential features of the eczema. The elements referred to are such as anæmia, lithæmia, the strumous or gouty habits or conditions, high arterial tension, and also various derangements of other organs, mainly the digestive tract, liver, and kidneys, together with certain *nervous phenomena*; all these may be well- or ill-defined, and may either obtrude themselves or be discovered only after close investigation.

As remarked before, none of these elements have been proven to belong properly and absolutely to eczema, but still from accumulated clinical experience they must, singly or combined, be considered

factors in the production of the disease. If, however, we are pressed to a single answer as to the real nature of the disease, we are obliged to state that we as yet know very little in regard to the true and fundamental cause of eczema: why one person should have it when another individual escapes, who is apparently in the same or worse condition in respect to the derangements of health mentioned, cannot be explained.

The real reason, however, possibly lies in the local condition or constitution of the skin itself, which renders it liable to take on this peculiar form of inflammatory action, either upon the application of external irritants, or from neurotic or other derangement of its nutrition from within. To this condition or state of the individual in whom these changes are likely to take place, under the same or other causes, we apply the term *eczematous*, without indicating thereby any exact or particular disease or known alteration of the system, simply for the reason that we do not know what that is.

I think, therefore, that in studying the relation of eczema to disturbances of the nervous system, or its relation to any other derangements, functional or organic, of any portion of the economy, or in considering the effects of local agents in producing the eruption, we should be very careful to discriminate between predisposing and exciting causes, and give due weight to each: *post hoc ergo propter hoc* is a very seductive and dangerous form of reasoning in medicine, but one which is often unconsciously, or sometimes ignorantly, applied.

Thus, when we see an eruption, which we call

eczema, apparently follow or depend upon some nervous disturbance, we should carefully consider (1) if, possibly, it may be only a coincidence ; or (2) that the two may depend upon one common cause ; or (3) that the nerve-disturbance may have excited the eruption in one previously predisposed thereto ; or (4) that the effect of the former may be very remote, putting in action a train of systemic changes which may end in inducing the eruption. In none of these instances could we properly speak of the nerve disorder as the cause of the disease. Even when the eruption seems to follow pretty directly upon some severe nerve strain, shock, injury, or disease, much caution should be exercised in ascribing an immediate causative connection, for how rarely do we find these conditions followed by the development of eczema ; and, on the other hand, how very few of the multitudes who suffer from eczema ever exhibit any causative elements pointing toward the nervous system. To my mind the proof is infinitely stronger in regard to many other of the internal and general causative elements mentioned, and in a far larger proportion of cases, than is that regarding the connection of eczema with disorders of the nervous system.

But still, while it is thus urged that caution is necessary before accepting any etiological relationship between eczema and nervous disturbances, it must yet be granted that the weight of evidence is very strong in favor of such relationship to a greater or less extent in certain cases, and that possibly, as our thought is turned in this direction, it may become even more evident than it is at present ; and

certainly it is wise to regard the neurotic aspect of many cases of eczema in connection with the therapeutics of individual patients.

There is one clinical feature or symptom in eczema which would seem to point to a neurotic element in the disease, even to the most superficial observer, namely, the itching, without which the disease may hardly be said to exist. Not only is the sensation of pruritus a common and severe symptom when the eruption is pronounced, but even before any amount of lesions are appreciable on the skin, and often long after they have ceased to be prominent, the itching may prove most distressing; and all recognize that scratching to relieve itching is a most prolific cause of the development and increase of the eruption. How far the itching is a primary feature, and how far it results from pressure upon nerve filaments by effused fluid or swollen cells, it is impossible to state; it is certain, however, clinically, that in an acutely-developing vesicular eczema there is much relief from the itching when the fluid reaches the surface, either spontaneously, or by artificial aid; on the other hand, some of the most distressing and inveterate pruritus is found in certain cases of erythematous eczema about the face, where there is but little infiltration of tissue. This latter form is very apt to occur in elderly persons, and in those nervously broken down.

For many years writers have recognized, to a greater or less extent, the dependence of certain cases of eczema upon nerve-disturbance or disease, and in addition to the generalized statements found in text-books to this effect, there are a considerable

number of recorded observations in different countries which tend to show the clinical and pathological soundness of this view. It will be our endeavor to classify these observations, and to present, as briefly as possible, such evidence as seems of special interest.

There are so many points to be considered in studying the influence of the nervous system in the production of eczema, that it is by no means easy to weigh the relative effect of the various nerve lesions or disorders which have been reported in this connection, nor to distinguish clearly the real mode in which the deranged neurotic element operates; at present much relating to the subject is mere conjecture, waiting for verification or refutation with the light of advancing science. But as all work can be best carried on when there is a skeleton basis on which to arrange proof, we may attempt to construct a scheme about which clinical and pathological observation and research may build as opportunity offers.

With this view, and with the material at hand, we will consider the relations of eczema to disturbances of the nervous system under the following heads:

1. Anatomical, physiological, and pathological grounds for such a relationship; and
2. Clinical grounds, based on recorded observations.

1. *The anatomical and physiological grounds for a nerve-relationship in eczema need not detain us long. All are familiar with the very abundant nerve-supply of the skin, and with its distribution even*

among and into the cells of the rete Malpighii, and into the cells composing the glands of the skin, and that nerve-fibres are very freely supplied even to the hair-follicles and lymph-spaces, as shown especially by Arnstein.¹

The influence of the vasomotor nerves, both in the normal regulation of the blood-supply and nutrition, and also in the production of morbid states, is now so well recognized both in regard to the skin and other organs that it needs but to be mentioned.

We are also well aware of the control which the sympathetic system exercises over various processes of the body, healthy and morbid, including the skin and its glands, as has been so carefully elaborated by Eulenberg and Guttman,² E. Long Fox,³ and others. The neurotic aspects of many skin affections have also been admirably worked up of late years by Rendu,⁴ Testut,⁵ Leloir,⁶ Schwimmer,⁷ and others,⁸ so that now there is no reason to doubt that from

¹ Arnstein: Sitz. der k. Akad. der Wissensch, Bd. lxxiv., Oct. 1876.

² Eulenberg and Guttman: Die pathol. des Sympatheticus, Berlin, 1873.

³ Fox: The Influence of the Sympathetic on Disease. London, 1885.

⁴ Rendu, Annales de Dermat. et de Syph., vol. v., 1873, p. 412.

⁵ Testut: De la Symétrie dans les Affect. de la Peau. Paris, 1877.

⁶ Leloir: Recherches clin. et anat.-path. sur les Aff. cutan., etc. Paris, 1882.

⁷ Schwimmer: Die Neuropathischen Dermatosen. Wien, 1883.

⁸ Thèses:

Triesch: Ueber den Einfluss der Nervensyst. auf Erkr. der Haut. Marburg, 1872.

Hageman: Ueber den Einfluss der vasom. Nerven auf die Hautk. Halle, 1874.

anatomical and physiological grounds changes may take place in the skin through the medium of the nervous system.

The direct anatomico-pathological grounds for recognizing a nerve origin of eczema have unfortunately been studied but little, and the subject offers a promising field for future research. The condition of the nerves in the affected skin in acute and chronic eczema, also the state of the conducting nerves and of the cord, likewise that of the sympathetic nerves and ganglia, have thus far been hardly at all studied. The much-quoted observations of Colomiatti¹ are almost our sole basis of knowledge regarding the condition of the cutaneous nerve filaments in eczema. It will be remembered that in a number of cases of eczema, mainly of the papulo-squamous type, he reports finding material changes in the cutaneous nerves, while in cases which had been partially or wholly cured, he claimed that the nerve-tubes had been to a large part restored to health; but he was unable to observe the various changes of regeneration. Leloir² states that in two cases of eczema in which he examined the nerves, he found both the nerve-filaments and their sheaths normal; but in a later communication³ he says that he has verified the observations of Colomiatti.

Koster: Die Hautk. und ihre Beziehungen zum Nervensys. Halle, 1876.

Witzel: Ueber den nervösen Char. des Ekzems, etc. Berlin, 1879.

Czempin: Die Theorien über den Einfl. des Nervens. auf d. Ent. der Hautk. Berlin, 1884.

¹ Colomiatti: Gior. Ital. delle Mal. Ven. e della Pelle, 1879.

² Loc. cit., p. 164.

³ Annales de Dermat. et de Syph., 1890, p. 475.

ECZEMA AND THE NERVOUS SYSTEM. II

2. *The clinical grounds* for the assumption of a relationship between eczema and disturbances of the nervous system are much more full and interesting, and have been dwelt upon by many observers.

We may divide our study of this portion of our subject into five general heads, considering eczema as it is related to

1. Neurasthenia or nerve-exhaustion.
2. Nervous and mental shock.
3. Reflex phenomena: (*a*) of internal origin ; (*b*) peripheral.
4. Neuroses: (*a*) structural; (*b*) functional.
5. Encephalopathy and myelopathy.

1. NEURASTHENIA OR NERVE-EXHAUSTION.

Neurasthenia, or general nervous exhaustion or depression, must be placed first in the list of neurotic conditions associated with or causative of eczema, since in this is found a predisposing element in very many cases of the disease ; moreover, it undoubtedly lies at the bottom of many instances in which other nervous conditions act as the exciting cause of the eruption, as will be mentioned later on.

While this term neurasthenia is somewhat indefinite, and as a disorder it may be said to have no pathology, yet practically the condition does exist, especially in America ; furthermore, a general nerve-exhaustion, from many causes and taking many shapes, is not infrequently found in a certain class of eczema patients, and does, to all appearances at least, have much to do with the genesis and continuance, or recurrence, of the eruption in many cases.

Clinical proof of this could be furnished in

abundance, and numberless cases could be detailed in which eczema, more or less severe and general in character, followed directly upon prolonged nervous strain, such as long attendance upon the sick, distressing or exhausting work of any kind, sleepless nights from worry or anxiety, etc. A few illustrative cases, some of which have already been mentioned in print, by the present writer, may be briefly alluded to :

An unmarried lady, aged fifty-three years, was the executive officer of a charitable institution, and her duties were arduous and exacting. On Tuesday of each week she was particularly tried on account of the weekly meeting and inspection of a board of lady visitors, and that night was often sleepless. Her eczema of the face and hands was always aggravated on the succeeding morning ; indeed, the eruption which would often yield very satisfactorily to treatment during the week, would burst out afresh on the Wednesday morning succeeding the visit. This had been the case for some months before I saw her, and was verified by myself again and again.

A prominent clergyman, aged fifty-two years, had for many years an eczema of the head and face, which was always greatly aggravated on Monday after the Sabbath's mental work and strain. This I myself observed on a number of occasions. The same occurred sometimes during the week, whenever extra work, such as a public address, was called for.

In another case, that of a lady, aged twenty-two years, any nervous excitement or household disturbance and hysterical crying would be followed by a fresh outburst of eczema of the hands.

In numbers of instances I have seen business or legal worry followed shortly by eczema. Mentioning the matter to an exceedingly intelligent gentleman, now aged forty-two years, whom I have seen off and on with eczema for ten years, he remarked on the truth of the observation, and said: "You may quote me as a striking illustration of the effect of nervous strain in producing eczema again and again."

Some knowledge in regard to the effect of nervous strain in the production of eczema may be learned, I think, from a study of the statistics of cases, especially in private practice. In the accompanying tables—I. and II.—are given the sex and age of 5000 cases of eczema under my personal observation, arranged in semi-decades, but time permits only one or two points to be noticed. It will be seen that about one-half of the cases were in males—nearly 54 per cent.; but if the tables be examined more closely, it will be found that among the private patients the males formed a much larger proportion, namely, almost 59 per cent. If now we analyze this more closely, we find that during the period of manhood, from thirty to fifty years of age, when the greatest strain of life comes on men, the number of males in private practice is about double that of females.

TABLE I.

TABLE OF PUBLIC AND PRIVATE ECZEMA CASES.

AGE.	PRIVATE.			PUBLIC.			
	Male.	Female.	Total.	Male	Female	Total.	Grand total.
6 mos. and under	48	32	80	65	62	127	207
6 mos. to 1 year	35	13	48	56	42	98	146
1 year to 2 years	30	30	60	91	47	138	198
2 " 3 "	26	21	47	69	51	120	167
3 " 4 "	11	17	28	49	58	107	135
4 " 5 "	7	10	17	44	18	62	79
5 " 10 "	36	42	78	108	111	219	297
10 " 15 "	22	47	69	53	82	135	204
15 " 20 "	41	73	114	76	102	178	292
20 " 25 "	62	86	148	119	127	246	394
25 " 30 "	92	96	188	135	112	247	435
30 " 35 "	129	66	195	116	84	202	397
35 " 40 "	135	69	204	104	119	223	427
40 " 45 "	124	63	187	76	107	183	370
45 " 50 "	113	67	180	76	121	197	377
50 " 55 "	97	54	151	94	108	202	353
55 " 60 "	90	41	131	64	69	133	264
60 " 65 "	67	31	98	52	49	101	199
65 " 70 "	48	14	62	39	31	70	132
70 " 75 "	34	11	45	31	13	44	89
75 " 80 "	16	6	22	8	5	13	35
80 " 85 "	4	4		1	2	3	11
85 " 90 "	2	2		...	1	1	5
90 and more	2	...		1	...	1	3
	1271	895	2166	1527	1523	3050	5216

Looking now at the column relating to male patients in private practice, we find that between ten and twenty years of age there were but 63 cases, whereas, in the next decade there were 154 cases, or about two and one-half times as many; while during the next decade, that between thirty and forty years

of age, there were no less than 264 cases, or more than four times as many cases as during the developmental period—from ten to twenty years—before the cares of life begin to weigh heavily on man. The next decade, that between forty and fifty years, shows also a large number, namely, 237 cases. Thus, between the ages of thirty and fifty, when the nervous strain of life comes most on men, the disease is enormously increased, there being no less than 501 cases, or nearly 40 per cent. of all the instances of eczema in males, in private practice, during this period.

The increased proportion of cases of eczema in males during this period is also forcibly shown in Table II., where the proportion of eczema cases to living people is shown in periods of five years each. Here we see that while the percentage of persons living between the ages of twenty-five and thirty years is only 7.5, the proportion of the eczema cases occurring during this five years is 8.3, and the increased ratio is shown in each semi-decade up to sixty years of age.

TABLE II.

COMPARISON OF PERCENTAGE OF ECZEMA PATIENTS AT DIFFERENT AGES WITH THE PERCENTAGE OF INDIVIDUALS ALIVE AT THOSE AGES, AS SHOWN BY THE CENSUS.

Ages.	Per cent. of ages of all persons.	Per cent. of eczema patients.	Relation between the two.
Under 1 year .	. 2.2	6.7	+
1 to 2 years .	. 2.0	3.8	+
2 " 3 " .	. 1.9	3.2	+
3 " 4 " .	. 1.8	2.6	+
4 " 5 " .	. 1.8	1.5	—

Ages.		Per cent. of ages of all persons.	Per cent of eczema patients.	Relation between the two.
5	to 10 years	. 8.7	5.7	—
10	" 15 "	. 8.4	3.9	—
15	" 20 "	. 8.2	5.6	—
20	" 25 "	. 7.9	7.6	—
25	" 30 "	. 7.5	8.3	+
30	" 35 "	. 7.2	7.6	+
35	" 40 "	. 6.7	8.2	+
40	" 45 "	. 6.3	7.1	+
45	" 50 "	. 5.9	7.2	+
50	" 55 "	. 5.4	6.8	+
55	" 60 "	. 4.8	5.1	+
60	" 65 "	. 4.1	3.8	—
65	" 70 "	. 3.3	2.5	—
70	" 75 "	. 2.4	1.7	—
75	" 80 "	. 1.5	0.67	—
80	" 85 "	. 0.7	0.21	—
85	" 90 "	. 0.2	0.1	—
90	and over	. 0.07	0.056	—

Exactly how this nerve-strain and nerve-exhaustion operate to induce eczema cannot now be stated with certainty, but, clinically, the fact appears very certain when cases are studied with sufficient exactness. This view is also supported by many writers, and finds corroboration in such expressions as the "nervous debility" of Wilson, and "faulty innervation" of Hebra, Tilbury Fox, and others. It is interesting to note that the elder Hebra¹ expressed himself convinced that "faulty innervation played the principal rôle in the production of eczema"; although now so often quoted as a localist, he recognized the internal and general causation of many skin-affections to a much greater extent than is

¹ Hebra: *Lehrb. der Hautkrankheiten*, Erlangen, 1879, vol. i. p. 763.

commonly believed. Nikolski¹ has recently reported some cases illustrating the neurotic origin of eczema.

Finally, the therapeutic measures which are of service in many cases of eczema point strongly to a general neurotic causation. Arsenic, strychnine, quinine, preparations of phosphorus and iron, cod-liver oil, and other remedies which are of use in neurotic states, form the basis of much of the internal treatment of eczema; ergot also, as especially shown by Witzel,² often proves very valuable, acting, as it is claimed, through the vasomotor nervous system. Electricity likewise, in the form of general galvanization, has been reported on favorably by Beard,³ Fitch,⁴ Morton,⁵ Eloy,⁶ and others. It is quite possible, also, as suggested by Tilbury Fox,⁷ that the beneficial effect of sedative local measures, used early in acute eczema, may be ascribed in part, at least, to a reflex neurotic action.

2. NERVOUS AND MENTAL SHOCK.

THE effect of nervous shock and violent emotions, such as grief, anger, etc., in the production of eczema has long been recognized by writers on

¹ Nikolski: Quoted in *Viertelj. für Derm. und Syph.*, vol. xix. p. 1020, 1887.

² Witzel: *Loc. cit.*

³ Beard: *Archives of Dermatology*, New York, 1875, p. 325.

⁴ Fitch: *Ibid.*, New York, 1875, p. 55.

⁵ Morton: *New York Medical Record*, April 5, 1879, p. 331.

⁶ Eloy: *l'Union Méd.*, September 13, 1883; *Journ. Cutan. and Ven. Dis.*, 1884, p. 58.

⁷ Fox: *Journ. Cutan. Med.*, iv. p. 170.

dermatology, and the well-authenticated instances of this on record are so numerous that it cannot be questioned that this form of nervous disturbance often operates either to produce the disease or to excite an attack in one susceptible to the same. The limits of this article do not permit even a reference to the many statements supporting this proposition by observers of the highest standing, or to the many cases which have been reported. Meyer¹ has collected a large amount of material bearing on this subject, and gives a number of illustrative cases. Leloir² has also studied the matter very closely, and relates several very striking cases: a single one of these will serve to illustrate this portion of our subject.

A young woman who had never had any eruption previously except a pustular disease of the scalp at two years of age, but who was very nervous and impressionable, and who was in perfect health, suffered a violent mental shock, as follows: Approaching her home she saw her little child leaning out of the window, and on the point of falling; she cried out, and the child being startled, let go her hold and fell, strangely enough, directly into her arms, so that it received no harm. But the mother lost consciousness, and was completely broken down by the shock, and within three days developed a sharp attack of eczema, beginning on the upper extremities and invading much of the surface. Some months afterward she had a second and a third attack, each time following mental disturbance.

¹ Meyer: *De l'Influence des Emotions morales*, etc., Paris, 1876.

² Leloir: *Des Dermatoses par Choc moral*. *Ann. de Derm., et de Syph.*, 1887, p. 373.

The same writer records several similar cases. Tommasoli¹ reports the occurrence of eczema after long grief and sudden shock.

Mental and moral shock occurring in many different manners have been observed to be followed quickly by attacks of eczema; thus Radouan² reports that cases occurred in immediate consequence of the siege and Commune of Paris, in 1871, and I myself saw more than one case ascribable to the financial panic in Wall Street, known as "Black Friday," several years ago.

3. REFLEX PHENOMENA: (a) OF INTERNAL ORIGIN; (b) PERIPHERAL.

That reflex irritation is capable of exciting disease in other organs than the skin has long been an established fact, and reflex neuroses are among the most interesting phenomena seen in medical and surgical practice. This causation of eczema has also long been recognized, and clinical illustration in abundance could be cited, were it necessary or did time and space permit.

This reflex stimulation may come from within, or it may result from external irritation of the skin; in either case the eruption excited may cease with the removal of the cause, or may persist indefinitely.

a. Reflex Eczema of Internal Origin.

The simplest, and perhaps the most frequent, instance of the reflex excitation of eczema from an

¹ Tommasoli: Monatsh. für Prac. Dermat., 1886, p. 432.

² Radouan: Étude théor. et prat. sur l'Eczema; Thèse de Paris, 1875, p. 41.

internal cause is that observed in teething infants, in which each accession of a tooth will cause a fresh outbreak of eruption on the cheeks, forehead, chin, or elsewhere. Intestinal irritation by indigestible food may likewise induce attacks of eczema in the same manner as in some subjects it gives rise to urticaria, and Scarenzio¹ narrates two cases in which the eruption of eczema was due to the presence of tapeworm and one in which it depended on the oxyuris.

Danlos² has made a very careful study of the relation between the menstrual function and diseases of the skin, and reports a number of cases of eczema in which there was a most remarkable connection between the appearance of the eruption and the occurrence of the menstrual flow ; in some instances the accessions of eczema were observed a considerable number of times, and I myself have frequently remarked the same in a number of patients. Danlos also quotes Raciborsky as mentioning having observed this connection, and Tilt³ speaks of the same. Hebra⁴ states that he has seen women in whom each pregnancy was accompanied by an eruption of eczema on the hands. Bangs⁵ reports pruritus and eczema of the anal region dependent upon a reflex irritation from urethral stricture.

¹ Scarenzio; Quoted in *Viertelj. für Derm. und Syph.*, xvii. p. 315.

² Danlos; *Étude sur la Menstruation*, etc. Paris, 1874.

³ Tilt; *The Change of Life*, p. 175.

⁴ F. von Hebra, *loc cit.*, p. 457.

⁵ Bangs; *Neuroses of the Genito-urinary System*, N. Y. Med. Monthly, 1885.

Richey¹ has recorded a most interesting case in which an erythematous and vesicular eczema appeared on the cheeks of a little girl of ten years each time that she used her eyes to any extent. She suffered from ametropia, and when this was relieved by proper lenses the eruptions ceased to appear, in spite of great use of the eyes. I have recently had under my care a most striking case in a lady aged about fifty years, in whom attempts to use the eyes had repeatedly precipitated a severe attack of eczema beginning on the eyelids; this occurred many times before I saw her, and happened a number of times under my own observation. I have seen several other striking instances more or less similar, and oculists have mentioned to me that the same was not very uncommon in their experience. Juler² has treated of the reflex origin of eczema in connection with eye troubles.

b. Reflex Eczema of Peripheral Origin.

Although it undoubtedly happens that external irritants may and do produce an eruption of eczema in a reflex manner, the clinical evidence of this has not been as fully reported as that with reference to other portions of our subject. The instance reported by Kroll³ is, however, very striking:

A woman, thirty-nine years of age, received a severe scald of the right cheek, followed by cicatrization. Under treatment by collodion a severe

¹ Richey: Archives of Ophthalmology, xiii, 1, 1884.

² Juler: Lancet, 1884.

³ Kroll: Cited in Viertelj. für Derm. und Syph., xv. p. 612.

eczema developed on the cheek, followed by vesicles on the fingers, hand, and arm of the same side. Shortly after eczema appeared on the left cheek, and then on the left hand and arm.

It was thought that the eruption developed on the extremity through a reflex irritation from the auricularis magnus, by means of the communication of the cervical with the brachial plexus. This is further confirmed by Tidenat,¹ who describes persistent eczema as a not infrequent complication of old burns.

The development of patches of eczema upon distant portions of the body is readily explained in many instances by a reflex irritation from some local patch, which may have been excited by a local cause. The later symmetrical development of acute vesicular eczema on a corresponding opposite portion of the body, as one hand or foot after the other, can be satisfactorily explained by reflex action through the cord. It is well known that in scabies there is often much eruption in parts and localities where the insect has not been present; these eruptions are often explained as due solely to scratching; but, with the reflex pruritus which has led to the scratching, there is also some capillary disturbance; and relief from the itching is not obtained until the surface is torn and more or less exudate has reached the surface. In a recent paper upon pruritus the present writer² endeavored to show from personal observations the reflex nature of much of the itch-

¹ Tidenat: Des gelures. Thèse d'agrégation. Paris, 1880.

² Bulkley; "Clinical Notes on Pruritus," Journ. of Cutan. and Ven. Dis., 1889.

ing on the surface, and if the phenomena of itching are carefully studied, on the normal or diseased skin, it will be readily seen how almost invariably a local irritation of one part will be attended with or followed by a greater or less degree of sensation in some part near by or quite distant.

4. NEUROSES: (a) STRUCTURAL; (b) FUNCTIONAL.

Closely connected with the preceding is the group of cases in which eczema has been observed to accompany, follow, or be dependent upon disease or disturbance of nerve-trunks. These may be divided into two classes, first, according as there is actual disease or damage to the nerve, and second, where no nerve lesion is known, but only functional disturbance manifested.

a. Eczema from Structural Neurosis.

The first, and perhaps clearest, evidence of this is that furnished in connection with wounds and injuries of nerve-trunks, as studied especially by Mitchell, Moorhouse, and Keen, during the late civil war in America. Mitchell¹ speaks of eczema as of frequent occurrence in those suffering from nerve injury, principally from gunshot wounds; Duménil² is quoted by Leloir as reporting eczema dependent upon alterations of peripheral nerves, which he describes; the same writer quotes Duplay³

¹ S. Weir Mitchell: *Injuries of the Nerves*. Phila., p. 171.

² Duménil: *Gaz. Hebdom.*, 1866, p. 88. (Leloir, loc. cit., p. 156.)

³ Duplay: "Erupt. Eczem. sur les, etc." *Union Méd.*, 1879. Leloir, loc. cit., p. 156.

as reporting eczema secondary to traumatic neuritis in stumps after amputation. Finally, Arnozan¹ relates the case of a man sixty years old, who had never had eczema, in whom the eruption followed soon after a violent contusion of the shoulder; there were violent pains along the arm, and forty hours after the accident eczema developed along the track of the radial nerve.

b. Eczema from Functional Neurosis.

Neuralgia, like neurasthenia, is a rather indefinite term, representing an affection or condition which may be said to have little or no established pathology, but a very large clinical history; and any very definite connection, causative or otherwise, with eczema, would be difficult to demonstrate with any great certainty. But everyone who carefully studies large numbers of cases of eczema in private practice will readily find many instances among a certain class of cases with eczema, where it would seem probable that the eruption and the neurotic condition called neuralgia were in some way connected. Cavafy² relates a case in which a severe trigeminal neuralgia of the left side suddenly ceased, and nine days later that side of the face became red and swollen, and developed a vesicular eczema. Leloir³ quotes Eulenburg to the same effect, and narrates two cases, communicated by

¹ Arnozan; Des Lésions troph. consec, etc. Paris, 1880, p. 124.

² Cavafy; Brit. Med. Journ., 1880, July 24 (Ann. de Dermat., 1881, p. 150).

³ Leloir, loc. cit., p. 157.

Lailier, in one of which the eczema alternated with the migraine. I, myself, have seen many patients with eczema in whom neuralgia was undoubtedly a factor of some importance in the case, although the etiological relations between the two are difficult to determine. The following striking case was observed during some months :

Mrs. B., a widow, aged thirty years, was thrown on her own resources for the support of herself and mother. She took to literary pursuits, and became editor of a magazine requiring a large amount of personal work, she using the pen almost constantly. After some months she began to suffer from neuralgia of the right arm, and at the same time a papular eczema developed on the back of the arm and the radial side of the forearm, attended with most intense itching. When she ceased for a time from her great use of the hand the neuralgic pain lessened and the eruption diminished, but a return to her severe application would cause a return of both. This continued for some time, and treatment for either condition seemed to have very little effect while the arduous labors were persisted in, but yielded quite readily when work was relaxed or suspended.

Other more or less similar cases could also be related.

5. ENCEPHALOPATHY AND MYELOPATHY.

Eczema induced by disease of the brain and spinal cord must be very rare, if, indeed, it really ever occurs, as relatively few allusions to the subject can be found in the literature. Meyer¹ quotes Fèvre to

¹ Meyer, loc. cit., p. 30.

the effect that eczema is frequent among the insane, and the latter considers the skin alteration a trophic disorder, dependent upon modifications in the cerebro-spinal axis. He has observed that when the mental condition is obstinate the eruption also is rebellious, but that when the latter is readily cured there is reason for a more favorable prognosis for the mental derangement. Nicol¹ has also noted eczema as common among the insane. No record has been found of eczema connected with inflammatory or neoplastic disease of the brain.

A number of observers have reported eczema in connection with diseases of the spinal cord, but the evidence of this relationship is not very strong. Charcot² speaks of papular or lichenoid eruptions which he has often observed along the track of painful nerves in ataxia, and which he referred to a common cause with the nerve lesion, and Rendu quotes Charcot as describing vesicular lesions in connection with acute and chronic myelitis. Vulpian⁴ describes a papular eruption, attended with intolerable itching, which appeared at the end of attacks of fulgurating pains in a woman with ataxia, and Purdon⁵ reports three cases of ataxia, in which the patient suffered from eczema of the lower extremities during the later period of the disease. Finally,

¹ Nicol: *Journ. Cutan. Med.*, London, iv. p. 197.

² Charcot, cited by Schwimmer, *loc. cit.*, p. 122.

³ Rendu: *Annales de Dermat. et de Syph.*, 1874-5, vol. vi. p. 205.

⁴ Vulpian: *Leçons sur les Mal. de la Moelle*, 1877, p. 338.

⁵ Purdon: *Journ. Cutan. Med.*, London, iv. p. 229.

Weir Mitchell¹ and Couyba² record eczema after wounds of the medulla.

It will be seen, however, that the positive evidence of eczema wholly dependent upon cerebral or spinal disease, is small, both actually and relatively, when compared to other nervous connections, and that this is a field in which we require further observation.

Having now reviewed, as far as possible, the anatomical, pathological, and clinical evidence accessible relating to the connection between eczema and disturbances or disease of the nervous system, let us briefly examine as to how far it goes to prove a real nerve pathology of eczema.

Before we can rightly understand the part played by the nervous system in the production of eczema, we must first clearly recognize and define what skin condition it is that we shall call eczema, for whose etiology we are searching.

First, then, we must insist upon the entire separation of *dermatitis*, pure and simple, from *eczema*.

We all know that the skin may become inflamed in various degrees from a great variety of local causes, from the mildest effect of heat or cold or mechanical action, or from various chemical and vegetable irritants, up to the most severe and destructive inflammation of its entire structure. To these different forms and degrees of skin inflammation from purely local causes, various names have

¹ Mitchell, Moorhouse, and Keen.

² Couyba: Des "Troubles trophiques consequetives, etc." Thèse de Paris, 1871.

been given, partly to describe the condition present and partly to express the cause. In this group belong the animal and vegetable parasitic diseases, which are to be entirely separated from the disease process long called eczema, and recognized by its clinical appearances, as will be mentioned later. All these conditions, depending wholly on local agencies, tend to pass away when the irritating cause is removed or has ceased to act: for the skin, equally with other structures of the body, has a strong tendency to return to a state of health, unless prevented by internal or external causes.

A single word must be said here in regard to an eruption or condition of the skin, to which much attention has been called of late, namely, the *seborrhæic eczema* of my esteemed friend Dr. Unna. I say "a single word," for any attempt to discuss the subject fully would carry me far beyond the proper limits of this paper. I can only say that I take issue entirely with Dr. Unna in regard to the matter referred to, and I say this after much thought, and after having seen many cases to which this diagnosis had been given by those who know well what is intended by *seborrhæic eczema*; I have followed the matter carefully almost from the very first appearance of Dr. Unna's publications. The most typical cases, which are mainly seen on the chest and back, I still regard as *seborrhœa*, while many of the less marked cases are readily recognized as other ordinary forms of eczema. Whether there is a parasite in *seborrhœa* I will not attempt to affirm or deny, but I cannot agree to burden eczema with this cutaneous condition, the clinical appearance,

course, and treatment of which, according to my experience, differ so entirely from those which belong to eczema proper.

I claim, therefore, that if this condition, called seborrhœic eczema, is a local affair, due entirely to a parasite, and cured by anti-parasitic treatment, it is, like the other conditions alluded to, a dermatitis, and not eczema in the truest sense of the term; we but confuse our subject and increase the difficulties of study and treatment, if we retain as eczema an eruption of a distinct local nature.

Excluding, then, all doubtful conditions, and taking eczema as we all know it, we must recognize the three main forms into which it has long been divided clinically:

1. Acute, newly-developing, or recurrent eruptions in erythematous, papular, and vesicular forms, with burning, itching, etc.

2. Chronic patches of diseased skin, with thickening and itching, tending to remain long quiescent, unless irritated or removed by treatment.

3. Between these two we have the subacute form, more or less extensive, where, with chronic patches, there are also exacerbations, to a greater or less degree acute in character.

Taking, now, eczema, as here recognized, we may study it according to the three elements of causation, as mentioned in the topic proposed for discussion:

1. Can nerve-disturbance cause eczema *de novo*, or does it only produce or excite an eruption in a previously susceptible subject? and in what manner does it act?

2. How far does a diathesis predispose to or cause eczema?

3. What part, if any, is played by parasites?

In the light of the many observations which have been made on all sides, some of which have been here quoted, there can be no question whatever that an eruption of eczema may be induced, in a person who has never before experienced the same, by certain conditions or disturbances of the nervous system; in other words, we answer that nerve-influence can produce the disease *de novo*; and it is clear also that in those who are susceptible thereto the eruption may be prolonged or fresh outbreaks caused by neurotic agencies.

In regard to the manner of operation, exactly how the nerve-disturbance produces its effect upon the skin, we are not as yet in a position to speak definitely; much more light, both clinical and pathological, is required before the matter can be considered to be definitely determined.

Looking back over the clinical part of this essay we find that there is so little evidence connecting eczema with disease of the brain or spinal cord that we may practically exclude them from our consideration. Our study, therefore, narrows itself down to the terminal and conducting nerves and their ganglia, and to the sympathetic nervous system; for the influence of the nervous system certainly must be invoked to explain the phenomena briefly quoted from many observers.

Considering the branches into which we divided our subject in a reverse order, we have seen that eczema has been observed :

1. In connection with or following mechanical injuries to conducting nerves.

2. In connection with or alternating with functional disorder of conducting nerves.

3. In connection with or following peripheral reflex irritation.

4. In connection with or following internal reflex irritation.

5. In connection with or following nervous or mental shock.

6. In connection with or following upon, once or repeatedly, neurasthenia or nerve-exhaustion.

Time and space fail us to investigate or even allude to and explain the various theories which have been advanced in regard to the *modus operandi* of the nerve-influence, and these have been so well elaborated by Leloir¹ in his excellent monograph already referred to, that it would seem useless to go over the ground again. It would appear best, therefore, with him to adopt the theory proposed by Vulpian as the most plausible one, namely, that of *a diminution, more or less complete, of the trophic influence exercised by the nervous system upon the tissues*. This diminution of the trophic influence may take place, either directly (by destruction of nervous fibres or trophic centres) or in a reflex manner (by a diminution of the action of the trophic centres under the influence of centripetal excitation of these centres).

There is no question that in eczema we have

¹ Leloir: Recherches clin. etc., sur les Aff. cutan. d'Origine Nerveuse, Paris, 1882, p. 179.

also a great implication of the vasomotor system, as is constantly seen in the congestive element of the eruption; the same is also shown by the great value of ergot in certain cases, to which Lewin and Witzel¹ have called particular attention, and of which I could furnish abundant personal evidence. But, as far as has been observed, mere dilatation or contraction of the bloodvessels does not result in the more permanent changes of the skin which are found in eczema; the angio-neurotic eruptions, such as roseola, erythema, and urticaria, do not tend to pass into the chronic and infiltrated condition of the skin which is seen in eczema. While, therefore, the nerves controlling the blood-supply are also affected in eczema, the real cause of the structural changes found in the skin must be charged to the nerves presiding over nutrition and repair, and with Schwimmer² we must place eczema as a tropho-neurosis.

What this trophic nerve-element is we cannot now say, but it is not at all necessary to believe with Samuel³ in the existence of any special set of trophic nerves, as they have never yet been demonstrated; but clinically we know that such an action must exist, even if we cannot demonstrate exactly the nerves which preside over nutrition.

The sympathetic nervous system has undoubtedly much to do with a genesis of eczema, but what share has not yet been demonstrated. The study of the

¹ Witzel; Ueber den nervösen Character des Eczems, etc. Berlin, 1879.

² Schwimmer: Loc. cit., p. 121.

³ Samuel: Die trophischen Nerven. Leipzig, 1868.

influence of the sympathetic on disease is most difficult, and relatively little has been accomplished in the direction of showing actual skin lesions due to primary disease or derangement of these nerves or their ganglia. The only pathological evidence in regard to eczema is the case reported by Marcacci,¹ which has been so often quoted that it is remarkable that other observations have not been made in this line. In Marcacci's case the man, aged seventy years, having an acute, generalized eczema, died of right pneumonia. At the autopsy "the upper cervical ganglia of the sympathetic, as also of the coeliac, were visibly hyperæmic to the naked eye, and on microscopic section the changes were even much more evident." Moreover, when immersed in distilled water, acetic acid, and glycerin, the specimens showed the presence of a large number of nuclei; the nerve-cells, diminished by the lateral pressure of the nuclear mass, were turbid in their protoplasm, and marked pigmentation was found in the intercellular spaces.

This single observation is certainly far from being satisfactory proof that the sympathetic nervous system is involved in eczema, although supported by clinical evidence, and by the therapeutical proof found in the benefit obtained in many cases of obstinate eczema from galvanization of the sympathetic, or central galvanization, as already mentioned. For, still, it is by no means certain whether the hyperæmic and other changes found in the sympathetic ganglia in this case were not connected with the pneumonia quite as much as with the

¹ Marcacci : *Gior. Ital. della Mal. ven. e della Pelle*, 1878, p. 171.

eczema. Further researches in this direction are urgently needed.

It would be interesting, did time permit, to study now somewhat in regard to the actual manner in which various nerve conditions operate to cause eczema, in certain cases. The question arises, How far the trophic and angio-neurotic phenomena are due to an exaggerated activity in certain nerves or ganglia, spoken of as the *lower centres*, or how far they are due to a want of control over the processes of life and health, as exercised by the *higher nervous level* or *centre*? We all know, from experience, that local or other agencies which at one time will cause the appearance of eczema in a patient, will at another time not be followed by such a result, and we very often recognize that it is because at that particular time the person is suffering from a depressed condition of health; or, in other words, that there is a lowered state of general vitality. With this there is a lowered nervous state, the patient is less under self-control, and, if a young female, may give way to hysterical manifestations. Now, in just the same manner the higher nervous centres, which undoubtedly control, to a greater or less extent, the lower centres which have to do with animal life, nutrition, assimilation, and metabolic processes, when they become weakened by prolonged strain or nervous or mental shock, they lose control of the organic processes, and errors occur which we call disease in various organs.

Thus we can explain how a local agency which in one patient, or at one time, will produce only a local dermatitis, may, in another patient or at another

time, excite an inflammatory condition of the skin which will be continued in the form of eczema. Want of time and space forbids our pursuing this interesting study further, and we must here rest our case.

Having seen, now, that the nervous system plays a most important part in the *rôle* of the production of eczema, we can better understand how other elements, such as various digestive and other derangements, can act as real basic causes of the disease. But the consideration of this aspect of the question would lead us far beyond the limits proper for the present occasion, and I must leave these, with the question of diathesis and parasitic influence, to others who will follow in the discussion.

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